

What is claimed is:

- [Claim 1]** 1. A method for machining bores of workpieces with a desired nominal shape of the bores in operative condition, the method comprising the steps of:
- a) producing in a workpiece a bore with a desired nominal shape in inoperative condition;
 - b) putting the workpiece in operative condition;
 - c) determining a deviation of a shape of the bore resulting from step b) from the desired nominal shape of step a);
 - d) determining from the deviation of step c) an initial shape which shape the bore must have in inoperative condition in order for the bore to assume the desired nominal shape in operative condition;
 - e) producing bores by employing the initial shape of step d) as a template.
- [Claim 2]** 2. The method according to claim 1, wherein the desired nominal shape or the initial shape is cylindrical.
- [Claim 3]** 3. The method according to claim 1, wherein in the step d) the initial shape is determined theoretically.
- [Claim 4]** 4. The method according to claim 1, wherein the deviation is determined experimentally.
- [Claim 5]** 5. The method according to claim 4, wherein in the step b) static pressing is employed and the obtained geometry is measured to determine the deviation.
- [Claim 6]** 6. The method according to claim 1, wherein in the step b) the workpiece is heated to operational temperature.
- [Claim 7]** 7. The method according to claim 1, wherein the deviation is determined by dynamic measuring during operation.
- [Claim 8]** 8. The method according to claim 1, wherein the deviation is determined theoretically.
- [Claim 9]** 9. The method according to claim 8, wherein computer simulation is used for determining the deviation.
- [Claim 10]** 10. The method according to claim 1, wherein in the step e) the initial shape is produced by employing temporally and locally varied processing parameters.
- [Claim 11]** 11. The method according to claim 1, wherein in the step e) honing is used, wherein the tool is a honing tool, arranged on a spindle and comprising at least one honing stone pressed with an advancing pressure against a wall of the bore.

[Claim 12] 12. The method according to claim 11, wherein in the step e) the advancing pressure of at least one honing stone is varied during honing.

[Claim 13] 13. The method according to claim 12, wherein the advancing pressure is varied as a function of a rotational position of the spindle.

[Claim 14] 14. The method according to claim 13, wherein the advancing pressure is varied as a function of a lifting position of the spindle.

[Claim 15] 15. The method according to claim 12, wherein the advancing pressure is varied as a function of a lifting position of the spindle.

[Claim 16] 16. The method according to claim 1, wherein the bore is a cylinder bore of a reciprocating piston machine.

[Claim 17] 17. A method for machining bores of workpieces with a desired nominal shape of the bores in operative condition, the method comprising the steps of:

- a) producing in a workpiece a bore with a desired nominal shape in inoperative condition;
- b) putting the workpiece in operative condition;
- c) determining a deviation of a shape of the bore resulting from step b) from the desired nominal shape of step a);
- d) determining from the deviation of step c) an initial shape which shape the bore must have in inoperative condition in order for the bore to assume the desired nominal shape in operative condition;
- e) producing a bore having the initial shape determined in step d).